

## ASPECTS OF BYZANTINE MATERIA MEDICA\*

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Byzantine materia medica, although not coterminous with Byzantine medicine in general, was certainly one of its more prominent subdivisions. Many different kinds of texts, varying greatly in size, date, style and credibility were concerned, wholly or partially, with medicaments as the primary means of promoting health. The heterogeneous nature of those texts is such that some have been ignored by students of Byzantine medicine while others would scarcely be recognized as practical medical texts by physicians and pharmacists today. For that reason, it may be convenient to examine some of the major components of Byzantine materia medica and to determine their relations, one with another, within the wider context of Byzantine medicine.

Prior to our discussion of some of the characteristic features of Byzantine materia medica, a few remarks on sources and their utilization are required. These remarks, however, are not those of the *Quellenforscher*, bent on establishing a textual tradition or the reconstruction of a lost *Urtext*. Rather, they are designed to call attention to one of the most pervasive characteristics of Byzantine materia medica, viz., the reliance of Byzantine writers on earlier written sources and the frequency with which the same authorities and their claims were copied, recopied, paraphrased and excerpted century after century.<sup>1</sup>

In Byzantine texts on materia medica a reference to a written source, especially in the form of a personal name, for example, Hippocrates or

Galen, was not the act of historical scholarship that today is associated with a learned footnote. Such a reference, it is true, sometimes furnishes a useful clue to the sources used by late Byzantine writers. But sometimes it appears as if a citation to an earlier writer was a ritualistic performance reflecting, in part, the traditionalism inherent in Byzantine medicine.

Hippocrates and Homer, as one would expect, were almost venerated by medical writers and, in the case of Hippocrates, for good reason. Leaving aside the question concerning the authorship of the texts traditionally ascribed to Hippocrates, there is little doubt that the observations contained in some of those texts provided valuable insights into the nature of disease and hence guidelines for therapy. On the other hand, citing the equally magical name of Homer was of questionable value with respect to therapeutic practice. For similar reasons references to Orpheus, Democritus, Poseidonius, and others were more a show of learning than an indication of how to minister to the sick.

References to the earlier, well-known Greek and Greco-Roman physicians are more readily understood. This applies especially to Dioscorides and Galen, but to others as well. Some of their writings, not merely extracts available in a florilegium, must have been readily available for consultation judging by the frequency of citation and the fidelity with which those passages agree with the original.<sup>2</sup> Even earlier Byzantine medical writers are sometimes cited by their successors, for example, Oribasius, Theophilus, Aitios, John Myrepsus and Jacob Psychrestus are all mentioned, favorably one might add, by later compilers.

In addition to citing sources and authorities by name, there are also references to anonymous oral

[The reader is referred to the list of abbreviations at the end of the volume.]

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<sup>1</sup>As an example, see the parallel passages assembled by A. Sideras, "Aetius und Oribasius," *BZ*, 67 (1974), 110–30.

<sup>2</sup>See J. M. Riddle, "Pseudo-Dioscorides' *Ex herbis femininis* and Early Medieval Medical Botany," *JHB*, 14 (1981), 43–81.

sources,<sup>3</sup> rustics,<sup>4</sup> books whose titles can no longer be ascertained,<sup>5</sup> and the vague references to *hoi Indoi*, *hoi Persai*, *hoi palaioi*, and the like. Finally there is a large but elusive class of references, typified by such phrases as *hos times phasi* and *hos legetai*. Whether the passages introduced by such phrases are genuine references to information current at the time or mere literary formulae requires further research.

Last is a group of pseudonymous texts. The attribution of a text, often rather small, to an identifiable figure was a well known literary device in both the East and the West. Hence there are several texts on materia medica that were attributed to Hippocrates, Galen, Dioscorides, Aitios, Simeon Seth and others.<sup>6</sup> None of these is now accepted as genuine.<sup>7</sup>

It is important, then, to recognize the dependence of Byzantine writers upon their predecessors. This applies particularly to descriptions of plants and plant substances which, in fact, make up the bulk of the composita. As the writings of Aitios and Paul indicate, they often repeated, sometimes with only the slightest verbal modifications, descriptions of simplicia drawn from Galen's abridgments of Dioscorides or from the latter's *De materia medica*.<sup>8</sup> There is little evidence in such descriptions that the Byzantine compilers possessed any additional information, with the result that the contemporary reader of Aitios or Paul was reading an account already over 500 years old. While plant species do not normally change very much in so short a period, their geographical distribution, and hence market availability, may have changed dramatically. Silphium is a good example.<sup>9</sup> According

to Pliny the Elder, it was already rare in the first century A.D.<sup>10</sup> Yet Leon and Alexander include it as an ingredient in composita without any hint that it might be rare or even unprocurable.<sup>11</sup>

With this by way of background, it is time to examine five other prominent aspects of Byzantine materia medica.

A convenient starting point is the recipe literature. For this is, in terms of size, one of the largest single components of the literature on materia medica.<sup>12</sup> By that very fact, it reveals the attitude towards drugs and the reliance placed upon them.<sup>13</sup>

### I. RECIPES

Recipes played the same role in Byzantine medicine as they do in modern folk medicine.<sup>14</sup> They were, so to speak, the distillate of traditional wisdom. They were the tangible evidence that diseases and other complaints were capable of being cured, for, after all, what other meaning can be placed on such phrases, usually at the conclusion of a recipe, as: "this has been tried," "he will be cured," or "you will be amazed." Other phrases of similar intent perhaps exaggerated the efficacy of the remedy.

The sheer mass of recipes, whether or not accompanied by magical devices,<sup>15</sup> gave the impres-

<sup>10</sup>NH 19.15.39.

<sup>11</sup>Leon Philosophus, *Conspectus medicinae* I, 8 (in Ermerins, p. 97); Alexander, I, 407 Puschm.

<sup>12</sup>E. Jeanselme, "Sels médicamenteux et aromatiques," *BullSocFrançHistMédical*, 16 (1922), 324-34; *id.*, "Sur un aide-mémoire de thérapeutique byzantine," *Mél. Ch. Diehl*, I (Paris, 1930), 147-70; A. P. Kousis, "Quelques considérations sur les traductions en grec des oeuvres médicales . . . par Constantin Melitiniotis," *Πρακτ. Ακαδ. Αθ.*, 14 (1939), 205-20; *id.*, "Εκ τῶν Μητροδώρας περὶ τῶν γυναικείων παθῶν τῆς μήτρας, Πρακτ. Ακαδ. Αθ.", 20 (1945), 46-68; Emile Legrand, "Formulaire Médical de Jean Staphidas," in his *Bibliothèque Grecque Vulgaire*, II (Paris, 1881), 1-27. Miscellaneous recipes are noted in Ch. Daremberg, "Notices et extraits des manuscrits médicaux grecs," *AMSL*, 2 (1851), 24-37. Because of a Byzantine substratum in late Coptic *Rezeptliteratur*, cf. Walter Till, "Koptische Rezepte," *BSACopt*, 12 (1949), 43-54 and *id.*, *Die Arzneikunde der Kopten* (Berlin, 1951). For Western medieval analogues, cf. J. Stannard, "Rezeptliteratur als Fachliteratur," *Scripta* (Brussels), 6 (1982), 59-73.

<sup>13</sup>For useful supplementary references to the use of and value placed upon drugs and drug therapy at the popular level, see J. H. Magoulias, "The Lives of the Saints as Sources of Data for the History of Byzantine Medicine in the Sixth and Seventh Centuries," *BZ*, 57 (1964), 127-50.

<sup>14</sup>J. Stannard, "Albertus Magnus and Medieval Herbalism," in James Weisheipl, ed., *Albertus Magnus and the Sciences* (Toronto, 1980) 355-77.

<sup>15</sup>Cf. the series of "Recettes magiques" edited by A. Delatte, *Anecdota*, I, *passim*.

<sup>3</sup>ἐγὼ γοῦν οἶδά τινα, δς . . . ἔφασκε Alexander (ed. Puschmann), II, 485.

<sup>4</sup>Alexander identified his sources for useful medical information as παρ' ἀγροίκου (II, 563 Puschm.) and παρὰ Κερκυραίου ἀγροίκου (II, 565 Puschm.) Dialectal forms of plant names are likewise credited παρὰ τοῖς ἰδιώταις (Delatte, *Anecdota*, II, 283.13; 300.14; cf. also 345.12 . . . οἱ ἰδιῶται καλοῦσι).

<sup>5</sup>The source for the Mousarion collyrium is described by Alexander (II, 15 Puschm.) ἐκ τοῦ ἱερατικοῦ τόμου.

<sup>6</sup>As an example of such pseudonymous texts, see H. Schöne, ed., "Hippokrates Π. φαρμακῶν," *RhM*, 73 (1920), 434-48.

<sup>7</sup>See Delatte, *Anecdota*, II, pp. 339, 385, 456, 466.

<sup>8</sup>*De simplicium medicamentorum temperamentis ac facultatibus*, in Galen (ed. Kühn), XI, 379-892; XII, 1-377.

<sup>9</sup>Asafoetida, the congealed sap of silphium, was also known under other names, for example, λάσαρον καὶ λάσαρ ὁ ὁπὸς τοῦ σιλφίου, Delatte, *Anecdota*, II, 290.7. It was probably obtained from one or both of two closely related species, *Ferula narthex* Boiss. and *Scorodosma foetidum* Bunge. See, Vladimir Viskentiev, "Le Silphium," *BIE*, 37 (1954), 123-50.

sion that, provided the enumerated ingredients were available, prepared and administered in the manner stipulated, there was, ready at hand, one or more means of combating a disease. The plurality of recipes for the same complaint, often in succession, seemed to demonstrate that there was a variety of procedures, all equally efficacious. The conclusion that *we* would reach, viz. that such a sequence was a virtual admission that none was predictably reliable, was apparently not drawn. The usefulness of these recipes, however, was not confined to curing diseases or healing wounds. They also provided one with the means of averting misfortunes, prognosticating the future, and a wide range of techniques applicable to daily life, either at home or when traveling abroad.<sup>16</sup>

Because of the wide range of processes and events that could be corrected or controlled by following a recipe, it is impossible to even guess at their number. They occur in profusion, as one might expect, in the general medical treatises, from Oribasius to Actuarius. In addition they occur, though with a lesser frequency, in lexica, herbals, and dietetic texts. Finally, of course, there were the recipe collections themselves. But even here, there is considerable variety in the individual recipes. Many were straightforward statements of what to prepare and how to administer it for a specific medical problem, for example, gout, fever, headache, and the like. Others, however, were more akin to what we would call *secreta*, that is, pieces of useful information, not generally known, relating to the solution of mundane problems, for example, how to rid the house of mice,<sup>17</sup> how to disguise gray hair,<sup>18</sup> or the means of exorcising demons<sup>19</sup> or predicting the sex of an unborn child.<sup>20</sup>

<sup>16</sup> In addition to Delatte, *Anecdota*, II (cf. note 4 above), see H. J. Magoulas, "The Lives of Byzantine Saints as Sources of Data for the History of Magic in the Sixth and Seventh Centuries A.D.," *Byzantion*, 37 (1968), 228–69. Means of averting the potential dangers of traveling are indicated in numerous ways. For example, see G. Dagron et J. Rougé, "Trois horoscopes de voyages en mer," *REB*, 40 (1982), 117–33.

<sup>17</sup> Margaret H. Thomson, ed., *Textes grecs inédits relatifs aux plantes* (Paris, 1955), p. 111.9–19.

<sup>18</sup> Kousis, "Quelques considérations" (note 12 above), 213.1–4. Three recipes for darkening the hair are given by Alexander, I, 453 Puschm.

<sup>19</sup> Sp. Kabasilas, *Λαογραφικά σύλλεγτα*, *Λαογραφία*, 2 (1911), 645–54; Delatte, *Anecdota*, I, 111.1–18. For a modern parallel, cf. L. Arnaud, "La baskania ou le mauvais oeil chez les grecs modernes. II. Exorcismes quérisseurs," *EO*, 15 (1912), 518.

<sup>20</sup> E. Legrand, *Bibliothèque* (note 12 above), II (1881), 16.452–55; A. Delatte, *Anecdota*, I, 451.19–22.

## II. LEXICAL

A second aspect of Byzantine *materia medica*, prominent in itself but also related to the authoritarianism noted earlier, is a concern with nomenclature and other lexicographical issues.<sup>21</sup> That concern with words was not restricted, however, to glossaries, many of which have been published in the past half century.<sup>22</sup> The same attention to orthography, etymology, and synonymies is also evident in the recipe literature and in the descriptions of *simplicia* that are scattered throughout the several medical texts.

A concern with words might appear, at first glance, somewhat sterile from a medical point of view. But, despite the inevitable excesses of some authors, such a concern was meant to serve a practical purpose. To what extent it did so, however, is difficult to judge in the absence of evidence concerning the use of those lexica by physicians and apothecaries in the course of their daily professional work.<sup>23</sup> But the time and effort expended in preparing lexica, especially the multilingual ones, was probably justified.

Classical, that is, Attic Greek, the *koine*, and some vernacular dialects came together in Byzantium. Over the centuries that polyglot was infiltrated by many non-Greek loan words, some of which were later accepted and functioned as if they were truly Greek.<sup>24</sup>

As a result of this linguistic admixture, various problems arose concerning the vocabulary of *materia medica*. As older words lost currency and were

<sup>21</sup> Cf. J. Stannard, "Byzantine Botanical Lexicography," *Episteme*, 5 (1971), 168–87.

<sup>22</sup> A. Delatte, "Le Lexique de botanique du Parisinus graecus 2419," *BiblFacPhilosLettLiège*, 44 (1930), 59–101; *id.*, *Anecdota*, II, 273–454 [15 lexica]; Margaret H. Thomson, *Textes grecs* (note 17 above), 125–77 [3 lexica]. Much earlier, Vilh. Lundström published two other lexica: "Botaniska lexika från den grekiska medeltiden," *Göteborgs Högskolas Årsskrift*, 15 (1909), 42–52; *id.*, "Ett persiskt-grekiskt medico-botaniskt lexikonfragment," *Erannos*, 12 (1912), 170–74.

<sup>23</sup> It is tempting to think that the ἐπιστήμων or the πημεντάριοι attached to the Pantokrator Hospital had access to a receptarium in order to prepare the many different compounds for patients of both sexes who suffered from a variety of illnesses and wounds. Cf. P. Gautier, ed., "Le typikon du Christ sauveur Pantocrator," *REB*, 32 (1974), 1–145.

<sup>24</sup> For example, ζουλάπιον (Arab. *julab*), used by Planudes, *De morborum materie*, 30 (Ideler, II, p. 321.9). For similar reasons, μαατζούν (Arab. *matzun*) i.e., an electuary, "encore usitée aujourd'hui chez le peuple grec," A. Kousis, "Quelques considérations" (note 12 above), p. 217. Cf. also πημεντάριος (Lat. *pimentarius*, note 23 above. For further examples, see G. Meyer, "Die lateinischen Lehnworte im Neugriechischen," *SBWien*, Phil.-hist. K., 132/3 (1895), 1–84.

supplemented, then supplanted, by newer words, lexica were required in order to stay abreast of medical terminology, and, at the same time, to read with understanding the older authorities, especially Dioscorides and Galen.

The perplexity created by the fluid vocabulary of *materia medica* can be illustrated in many ways—for example, the profusion of synonyms, Greek and non-Greek alike,<sup>25</sup> for a single substance, scribal errors based on similarities of sound and/or spelling of words denoting medical substances, and the fact that, even today, the denotata of some of those terms is an educated guess.<sup>26</sup>

The ambiguity that resulted was not a mere academic challenge, for it may well have made a difference whether, for example, *ammoniakon* was thought to mean a mineral or a gum resin,<sup>27</sup> or whether *peristereon* meant a bird or a plant,<sup>28</sup> or *chelidonium* a bird, a mineral or a plant.<sup>29</sup>

Under these circumstances and in the absence of a standardized nomenclature, many physicians prepared lexica for their private use. These must be distinguished from the lexica prepared by literary scholars and professional glossators such as Photios and Hesychios. For while the former are grossly inferior in terms of style, and all of them much smaller, they have the merit of being restricted, for the most part, to the vocabulary of medicine and allied disciplines. This should not be taken to mean, however, any significant advance in

medical lexicography. For, despite the praiseworthy purpose for which these smaller lexica were compiled, they are studded with errors of one kind or another. The most important, for our purpose—and I think I also speak for the nameless patients of those physicians—is the high number of incorrect synonyms for plants, portions of which served as ingredients in literally hundreds of composita. It would be uncharitable to catalogue those incorrect synonyms here, but it is worth emphasizing if only to call attention to the possibility of serious consequences when the names of medicinal substances were misunderstood.

### III. MEDICINAL SUBSTANCES

It is but a short step from the words used to denote medicinal substances to an examination of the substances themselves. The vast majority described in Byzantine texts on *materia medica* as having therapeutic properties can be identified with some assurance.<sup>30</sup> Of that number many are also known today, though not always as medicinal substances. Some of them, garlic and parsley for example, are used as seasoning agents. Others, for example thyme and rue, are grown in modern herb gardens, while others, such as the lily or daffodil, are known as ornamentals. Still others, such as frankincense and myrrh, are used for liturgical purposes much as they were in Byzantium. Finally, of course, many of the substances listed as ingredients in Byzantine recipes are still employed as primary foodstuffs: tuna, goose, wheat and barley, cheese, bread, and wine. Moreover, nearly every one of the substances mentioned in our texts is also used in modern folk medicine, and often for similar purposes. Most of the substances found in Byzantine *materia medica*, however, have long since been abandoned in modern *Schulmedizin*.

For a variety of reasons—uncertainty concerning the precise identification of some substances, the ambiguities of the lexical synonymies and, above all, the absence in antiquity of any chemical means of describing mineral substances—it is idle to speculate on the number of therapeutic substances referred to in our texts. But even if certainty were reached concerning their identification, it is un-

<sup>25</sup>Three of the lexica edited by Delatte (*Anecdota*, II, pp. 393–454) contain synonyms in Latin, Italian, Turkish and Arabic.

<sup>26</sup>A selection of neologisms and rare words pertaining to Byzantine *materia medica* will be found in Jeanselme, "Un aide-memoire" (note 12 above), *passim*.

<sup>27</sup>Ἀμμωνιακόν was a gum resin derived from *Dorema ammoniacum* D. Don. Used medicinally for its pungent odor, the fumes were inhaled; hence the frequent gloss θυμίαμα. Ἄλς ἀμμωνιακός, known to Byzantine glossators as ἄλς ἀμμωνιακόν, was a natural, crystalline, mineral substance whose composition probably varied depending upon the water-soluble impurities. Because the two substances were not always distinguished, a post-classical name, λεοντόγαλα, was coined (Delatte, *Anecdota*, II, 306.12).

<sup>28</sup>Περιστερεών, sometimes περιστερά in the lexica, usually meant a plant, probably *Verbena* sp., hence the synonymy ἱερὰ βοτάνη. The form περιστερεών ὄρθιος or ὄρθός was presumably an attempt to distinguish the plant from the common dove. The latter occurs rarely as a medicament and not at all in the medical lexica. Dioscorides' effort to explain the name (IV, 59 Wellmann) was abbreviated by Galen, XII, 98 K. For further details, cf. J. Stannard, "Magiferous Plants and Magic in Medieval *Materia Medica*," *Maryland Historian*, 8 (1977), 33–46.

<sup>29</sup>Due to the similarity between χελιδών, χελιδόνιον and χελιδονία these terms became confused, as they had in Latin. In fact, the confusion in late Greek reflects the Latin, cf. χελιδόνιον τὸ μικρόν· χελιδόνια μηνόρε and χ. τὸ μέγα· κ. μαίόρε, Delatte, *Anecdota*, II, 416.16–17.

<sup>30</sup>Cf. B. Langkavel, *Botanik der späteren Griechen vom dritten bis dritzehnten Jahrhundert* (Berlin, 1866). (Langkavel's study must be used with caution). For supplementary data and modern scientific nomenclature, cf. J. Stannard, "Identification of the Plants Described by Albertus Magnus, *De vegetabilibus*, Lib. VI," *Res Publica Litterarum*, 2 (1979), 281–318.

likely that all of them would have been available at any one time in a given place.

It is more compendious, therefore, to divide the medicinal substances into five large groups and provide a few illustrations of each.

(i) *Substances of Plant Origin*

Since several examples of plant substances that were used therapeutically have been noted above, it will suffice to make but a few general observations. Approximately 450 different species of plants can be identified in the *materia medica*. This includes all the major taxa, including mosses, ferns, algae and even fungi. The greatest emphasis, however, was on the seed-bearing plants whose seeds, foliage and roots accounted for most of the botanicals whether used as medicaments, as seasoning agents, or as primary foods. In many instances it appears that a pronounced aroma or taste was the most important rationale for its use, unless, of course, the older authorities could be cited as having used that species for a specific purpose. But it was the exotica, transshipped via the Near East, that dominated the recipes—cinnamon, pepper, ginger, cloves and sugar. These, the so-called spices, were usually available only in the dried commercial form. Various passages suggest that their quality varied considerably. This may have been due to political and economic events which periodically disrupted trade. Despite the efforts of the commercial guilds, uniform quality was probably not always achieved.

(ii) *Substances of Animal Origin*

As in the case of plants, some portion of most of the common animals—sheep, goat, ass, for example—was used for some medicinal purposes. This included not only mammals but birds, fish, reptiles and amphibia. But the use of animal products extended well beyond the vertebrata. A wide range of insects, arachnids, crustacea, molluscs, and other phyla were also employed.<sup>31</sup> By and large, most of the animal substances long ago disappeared from medical practice, and one suspects that part of the reason for this was that while it may have been difficult to authenticate, it was all too easy to falsify crocodile dung, hyena gall, rabbit brain, and the like.

<sup>31</sup>J. Théodoridès, "Intérêt scientifique des miniatures zoologiques d'un manuscrit byzantin," *Acta Biologica Debrecina*, 7/8 (1969–70), 265–72, 8 figs.

(iii) *Substances of Mineral Origin*

It is even more difficult to summarize the therapeutic uses of mineral substances for, in many cases, their descriptions permit only a tentative identification. Depending upon the impurities, inorganic as well as organic, plus physical processes such as weathering, what passed for *nitron* or *adarke* in one region may have been quite different with respect to color, odor, texture and weight in another region.<sup>32</sup> It was their physical properties and physiological action that determined the medicinal uses, particularly the water-insoluble minerals and metallic ores. Nonetheless, one can specify a few of the more frequently used mineral substances. Leaving aside coral and amber, whose animal and plant origin respectively were apparently unknown, this includes sulfur, various iron, lead, copper and arsenic compounds, argillaceous clays, and a host of precious and semi-precious gem stones whose virtues were enumerated in lapidaries.<sup>33</sup>

(iv) *Praeparata*

The fourth class, *praeparata*, can be dismissed more quickly, but not because those substances were unimportant. It is rather the case that the items falling within this class—wine, vinegar, olive oil, butter, barley meal, cheese, bread and the like—were, and are, household items known to all.<sup>34</sup> Each of the aforementioned was used for therapeutic purposes, either singly or as an ingredient in *composita*. To some of them specific properties were attributed. Butter, for example, possessed, according to Paul, a digestive and a dispersive or discutient property. For that reason it was useful for buboes and other swellings.<sup>35</sup>

(v) *Composita*

The last class, *composita*, can be dealt with even more quickly, for there is no simple way of discussing several hundred compound drugs in one paragraph. Suffice it to say our texts provide accounts

<sup>32</sup>Cf. M. Japhet, "Etude sur les principales eaux minérales de l'Asie mineure," *AnnSocHydrolClimatolMéd de Paris*, 23 (1877–78), 316–80.

<sup>33</sup>Cf. M. Psellos, *De lapidibus*, in Ideler, I, 244–47. (The recent edition by P. Galiani, *Michele Psello, De lapidum virtutibus* [Firenze, 1979] was not available to me.) Extracts from the Ps.-Hippocratic *Ἐρμηνεία περὶ ἐνεργῶν λιθῶν* are printed by Legendre, *Bibliothèque*, II, (1881), p. xxiii.

<sup>34</sup>E. Jeanselme et L. Oeconomus, "Aliments et recettes culinaires des Byzantins," *ProcInternCongrHistMed*, London, 1922, (Anvers, 1923), 155–68.

<sup>35</sup>Paul (ed. Heiberg [CMG IX, 1] I, p. 201).

of how to prepare and administer them, possible modifications, admissible substitutions, and the purpose or purposes served by each. Not infrequently this is accompanied by remarks concerning dosage and potential side effects. Many of those composita, incidentally, bore specific names, for example the Collyrium of Constantine or the Salt of St. Gregory the Theologian.<sup>36</sup> This association of a drug with the name of the person who allegedly introduced it or used it with conspicuous success was a convenient tag for physician and patient alike and acted occasionally, no doubt, as a testimonial.

#### IV. DIETETICS

The fourth aspect concerns dietetics. Throughout antiquity and the Middle Ages, there was an intimate relation between *materia medica* and dietetics. This was due partially to the dangers inherent in one of the most obvious of alternatives to drug therapy, surgery. Emphasis was thus often placed on the adoption of a regimen, of which diet was only one, albeit a conspicuous, part. But the close relations between *materia medica* and dietetics were further strengthened by the fact that the same substance—depending, of course, on how it was prepared, administered, and the amount—might function sometimes as a foodstuff or as a seasoning agent, at other times as a medicament. Herbs are good examples, but so too are some of the vegetables, for example onion, beet, or cabbage. Even to fruits and nuts there were attributed specific therapeutic properties. But pride of place went to barley. In the form of a thin soup or a thick gruel flavored with various ingredients, a barley tisane was, one is tempted to say, standard bill of fare.<sup>37</sup>

Because of the emphasis placed on dietetic advice as a means of curing specific diseases as well as averting future complaints, it is not surprising that a sizable literature developed.<sup>38</sup> The writings falling within this class vary considerably, from Anthimus' almost illiterate letter to the Emperor Theodoric<sup>39</sup> to Simeon Seth's painfully scholastic

analysis of nearly 200 items, many of which were part of everyday living.<sup>40</sup>

There is little need at this point to summarize the substances discussed by the medico-culinary writers, for there is a high correspondence between substances eaten for nourishment and those eaten to correct an imbalance or cure a disease. In the process of describing these substances and enumerating their virtues, attention was sometimes directed to the proper season to eat nuts, for instance, or certain species of fish or fowl. When reduced to rules, that information could be connected with calendaric and astrological data.<sup>41</sup> By so doing, a mystique *and* a rationale was provided, not only for dietetic advice but for a wide class of magical recipes and rituals designed to alleviate suffering.

#### V. PARAMEDICAL DATA

The last aspect, which for want of a better term I shall call "paramedical data," is also the most difficult to keep within bounds. Those paramedical data that I shall concentrate on here include amulets, talismans, incantations, and other techniques, all of which had, in addition to these medicinal uses, a further range of religious and magical uses.<sup>42</sup> Admittedly, only a thin line separates magic and religion, and an even more tenuous line separates folk beliefs from the grosser forms of superstition in which supernatural agents are either involved or implicated. My purpose here is not to settle the long-standing controversy of where to draw the line but to call attention to the medical aspects thereof. A simple example will illustrate the problem. For both epilepsy and gout there was a large assortment of *simplicia* and *composita* from which to choose;<sup>43</sup> moreover, various diets and regiminary

<sup>40</sup> Simeonis Sethii *Syntagma de alimentorum facultatibus*, ed. B. Langkavel (Leipzig, 1868).

<sup>41</sup> Cf. Hierophilus, πῶς ὀφείλει διαίτᾶσθαι ἄνθρωπος ἐφ' ἑκάστῳ μηνί, in Delatte, *Anecdota*, II, 456–66. (A different version is printed by Ideler, I, 409–17.) The same calendaric orientation underlies Theodore Prodromus, *Mensium adornatio* (Ideler, I, 418–20).

<sup>42</sup> Cf. G. Schlumberger, "Amulettes byzantins anciens destinés à combattre les malefices et maladies," *REG*, 5 (1892), 73–93; V. Laurent, "Amulettes byzantines et formulaires magiques," *BZ*, 36 (1936), 300–15; and F. Pradel, "Griechische und süditalienische Gebete, Beschwörungen und Rezepte des Mittelalters," *RVV*, III:3 (1907), 253–403.

<sup>43</sup> For epilepsy, the peony (*Paeonia officinalis* Retz.) was the most popular simplex, partly due to Galen's endorsement (XI, 859 K.), partly because of its prominent role in late Greco-Roman astrology. (cf. A. Olivieri, "La peonia nell'astrologia greca," *RIGI*, 21 [1937], 139–56.) Among the many recipes for *composita*, cf. Alexander (ed. Puschmann), I, 545–49; Kousis, "Quelques con-

<sup>36</sup> For τὸ Κωνσταντίνου κολλούριον cf. Ermerins, 135–37. For St. Gregory's salt, cf. E. Jeanselme, "Sels médicamenteux et aromates pris par les Byzantins au cours des repas," *BullSocFrançHistMédical*, 16 (1922), 327. Gregory's role as a healer even extended to praying to him for health and prosperity, cf. LeGrand, *Bibliothèque*, II (1881), p. xx.

<sup>37</sup> Cf. E. Darmstädter, "Pisana," *Archeion*, 15 (1933), 181–201.

<sup>38</sup> Cf. Delatte, *Anecdota*, II, pp. 455–99.

<sup>39</sup> *Anthimi De observatione ciborum ad Theodoricum regem francorum epistula*, ed. E. Liechtenhan (Berlin, 1963) [CMG VIII, 1].

procedures such as baths were also advised.<sup>44</sup> But in addition, amulets, periapts, and semi-precious stones carried on one's person were also thought to be of avail.<sup>45</sup> Generalizing from this example, it is clear that some people regarded the employment of amulets and the like as not essentially different from the use of poultices, decoctions, and clysters.<sup>46</sup> This was especially the case when the amulet was fashioned of a natural product that, in other instances, was regarded as a common medicament or foodstuff. This explains in part, I believe, the frequency with which laurel and olive leaves were

employed in medico-magical rituals, some of which had a healing function.

To conclude, it has been my intention to emphasize the most notable aspects of Byzantine materia medica and to provide a few illustrations of each. If space permitted, several other less obvious features would have been included, for example the several different, but ultimately interrelated philosophic theories that provided the rationale of drug action and hence explained why a particular substance was thought to be efficacious for a specific purpose. But since a discussion of such theoretical issues is restricted, on the whole, to a limited range of texts, it has been excluded here. It would also have been desirable to enlarge upon the physical operations and technological processes by means of which the raw or crude substances were prepared for administration and/or capable of being stored away for an indefinite period of time. Finally, I have not thought it necessary to enumerate the diseases and complaints for which drug therapy was recommended, the wide range of therapeutic forms available at the time, or the many alternatives to drug therapy. It is sufficient to say that the Byzantine physician had at his disposal one or more means of treating nearly every complaint with which he was faced. For that purpose texts were required, and it is presumably to such texts that Alexander of Tralles was referring when he stated that by following his recipes it was unnecessary to search further.<sup>47</sup>

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sidérations," 212.20; 213.2; 214.23 etc. For gout, many simplicia were employed, including *Colchicum autumnale* L., the source of colchicine, clinically recognized as specifically effective for gout. There are also many recipes for the preparation of composita, e.g., Alexander (ed. Puschmann), II, 517–47; Kousis, 214.7; M. H. Thomson (note 17 above), p. 73, etc.

<sup>44</sup> Alexander (ed. Puschmann), I, 541–45 recommended a wide range of regiminary measures for epilepsy. A few dietary counsels are recorded by S. Seth (ed. Langkavel) pp. 29.20; 47.15; 109.3; 123.13. For gout, Alexander recommended baths (II, 511–13 Puschm.) and some dietary restrictions (II, 508–10 Puschm.). Alexander, II, 531 Puschm. and Seth, 38.14–19 favor the use of chickpeas (*Cicer arietinum* L.) in the diet. For further details, cf. G. Schmalzbauer, "Medizinisch-Diätetisches über die Podagra aus spätbyzantinischer Zeit," *JÖBG*, 23 (1974), 229–43.

<sup>45</sup> Because the neuro-physiological cause of epilepsy was unknown, a supernatural origin was accepted, on the basis of which epileptics were shunned (cf. F. J. Dölger, "Der Ausschluss der Besessenen von Oblation und Kommunion," *Antike und Christentum*, 4 (1974), 110–29). As a consequence, magical devices were commonly recommended (cf. Alexander I, 557, 561, 567 [Puschm.]; Delatte, *Anecdota*, I, 486.11; 618.17), though rational therapy was still attempted (A. Philipsborn, "IEPA ΝΟΣΟΣ und die Spezial-Anstalt des Pantokrator-Krankenhauses," *Byzantion*, 33 (1963), 223–30). In general, see E. Jeanselme, "L'épilepsie sur le trône de Byzance," *BullSocFrançHistMédical*, 18 (1924), 225–74.

<sup>46</sup> Anna Chatzenikolaou, Μετάλλινα μαγικά εικονίδια Κωνσταντίνου και 'Ελένης, 'Επ.'Ετ.Βυζ.Σπ., 23 (1953), 508–18.

<sup>47</sup> Alexander, II, 109 Puschm.